

NEW MEMBRACIDÆ IN THE IMPERIAL INSTITUTE COLLECTION

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Through the courtesy of Sir Guy A. K. Marshall, Director of the Imperial Institute of Entomology, the writer has had the privilege of studying a considerable collection of Membracidæ in the collection of that Institute.

In this collection were found ten new species which are here described as follows:

1. *Leptocentrus albescens* sp. nov. (Fig. 1)

Small black with dense snow-white tomentose patches on the sides of the pronotum, on the scutellum and on the sides of the thorax and abdomen. Punctate, sparingly pubescent; suprahumeral strong, sharp, extending directly outward; posterior process slender, curved, well arched above scutellum, then turning downward and extending just to tips of tegmina; tegmina hyaline with prominent brown veins; legs black.

Technical description:

Head subquadrate, wider than long, black but with white pubescence around clypeus, finely punctate; base arcuate; eyes large, brown; ocelli large, brown, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; clypeus extending for half its length below inferior margins of genæ.

Pronotum black, finely punctate, sparingly pubescent; metopidium straight; median carina percurrent; suprahumeral horns a little longer than the distance between their bases, tricarinate, compressed dorso-ventrally, extending almost directly outward, tips acuminate; posterior process long, sinuate, well elevated above scutellum, then curving downward and impinging on tegmina for its apical third, tricarinate, tip sharp and just reaching tips of tegmina. Scutellum entirely exposed, longer than wide, tip bifurcate. Sides of pronotum below suprahumeral, base of scutellum and entire lateral surfaces of thorax densely white tomentose.

Tegmina wrinkled hyaline, base black, coriaceous and punctate; veins heavy and brown; limbus wide; five apical and two discoidal areas.

Legs black; tarsi brown.

Length from front of head to tips of tegmina 5.8 mm.; width between tips of suprahumeral 4 mm.

Type: female.

Type locality: Sierra Leone.

Described from two females and one male all taken at Bauninia, Sierra Leone, by E. Hargreaves, September 24, 1932. Type and

allotype in Imperial Institute collection; paratype in collection of the writer.

2. *Leptocentrus brunneus* sp. nov. (Fig. 2)

Slender, brown, punctate, pubescent, tomentose; suprahumeral triquerate, projecting outward; posterior process sinuate, not reaching tips of tegmina; tegmina translucent brown; undersurface of body brown; legs brown.

Technical description:

Head subquadrate, about as wide as long, brown, finely punctate, densely pubescent with long silvery hairs; base arcuate and sinuate; eyes large, brown; ocelli large, white, glassy, prominent, a little farther from each other than from the eyes and situated about on a line drawn through centers of eyes; genæ rounded; clypeus extending for half its length below inferior margins of genæ, tip rounded and pilose.

Pronotum brown, finely punctate, densely pubescent; metopidium wider than high, narrowly convex; median carina strongly percurrent; humeral angles strong; triangular, extending outward farther than the eyes; suprahumeral horns strong, triquerate, a little longer than the distance between their bases, extending outward, very slightly upward, flattened dorso-ventrally, tips blunt; posterior process slender, sinuate, arising well above the scutellum, then bending downward and impinging on tegmina, tip reaching a point half-way between interior angles and tips of tegmina, triquerate, tip gradually acuminate; scutellum entirely exposed, longer than wide, tip bifurcate; sides of pronotum behind horns and sides of scutellum narrowly white tomentose.

Tegmina long, narrow, wrinkled, translucent, brown; base narrowly dark brown, coriaceous and punctate; veins strong, reddish brown; limbus broad; five apical and two discoidal areas.

Undersurface of body brown; sides of thorax densely white tomentose; femora dark brown; tibia and tarsi reddish brown.

Length from front of head to tips of tegmina 6.8 mm.; width between tips of suprahumeral horns 3.2 mm.

Type: male.

Type locality: Nairobi, Africa.

Described from a single specimen collected in January, 1921. Type in Imperial Institute collection.

3. *Evanchon sinuatus* sp. nov. (Fig. 3)

Small, brown, punctate, pubescent; metopidium very convex; suprahumeral long, slender, sharp, extending directly outward; posterior process strongly sinuate and reaching just beyond internal angles of tegmina; tegmina hyaline with a brown fascia across middle; undersurface and legs brown.

Technical description:

Head twice as wide as long, brown, roughly sculptured, finely punctate, densely pubescent; eyes large, very dark brown, extending outward as far as the humeral angles; base strongly arcuate and sinuate; ocelli large, very prominent, white, pearly, as far from each other as from the eyes and

situated about on a line drawn through centers of eyes; genæ transverse, curved; clypeus extending for two-thirds its length below inferior margins of genæ.

Pronotum brown, finely punctate, sparingly pubescent; metopidium strongly convex; median carina strongly percurrent; humeral angles small, triangular; suprahumeral horns narrow, triquerate, very sharp, extending directly outward, a little longer than the distance between their bases; posterior process strongly sinuate, arising high about scutellum, then turning downwards to touch the tegmina, then upward, the tip very sharp and reaching just beyond internal angles of tegmina; scutellum entirely exposed, as wide as long, tip notched.

Tegmina hyaline; base narrowly brown, coriaceous and punctate; a brown fascia extending across the tegmen just behind the middle; limbus wide; five apical and two discoidal cells.

Legs and undersurface of body brown.

Length from front of head to tips of tegmina 5.3 mm.; width between tips of suprahumeral 2.8 mm.

Type: male.

Type locality: Uganda, Africa.

Described from two adults and a nymph. The male was collected at Kampala, Uganda, by H. Hargreaves on April 14, 1932. Mounted on the same card is a nymph, presumably of the same species but not here described. The female was taken by the same collector at Noala, Sierra Leone, in April, 1933.

Type and nymph in collection of Imperial Institute; allotype in author's collection.

4. *Gargara rufula* sp. nov. (Fig. 4)

Large, robust, bright reddish-brown, punctate, pubescent; posterior process broad, blunt, extending just to apical angles of tegmina; tegmina opaque, bright reddish-brown; front of head and sides of thorax black; eyes, legs and undersurface uniformly reddish-brown.

Technical description:

Head black with reddish margins, finely punctate, sparingly pubescent; base feebly arcuate; eyes large, reddish-brown, extending outward half as far as the humeral angles; ocelli small, inconspicuous, reddish, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; genæ sinuate; clypeus very broad, extending for one-third its length below inferior margins of genæ, base broadly truncate and pilose.

Pronotum bright reddish-brown, finely punctate, sparingly pubescent; metopidium sloping, twice as broad as high; median carina obsolete; humeral angles large, robust triangular, blunt; posterior process broad, heavy, nearly flat, almost straight, tip slightly depressed, blunt and just reaching internal angles of tegmina; scutellum narrowly exposed.

Tegmina opaque, bright reddish-brown; base broadly coriaceous and punctate; veins indistinct; limbus narrow; five apical and two discoidal cells.

Sides of thorax black; undersurface of body reddish-brown; femora dark brown; tibiæ and tarsi bright reddish-brown.

Length from front of head to tips of tegmina 4.3 mm.; width between humeral angles 2.5 mm.

Type: female.

Type locality: Aburi, Gold Coast, Africa.

Described from two specimens, a female and a male, both taken at the type locality by W. H. Patterson in 1912-13. The male is similar to the female but is smaller and the pronotum is black instead of red.

Type in the Imperial Institute collection; allotype in author's collection.

Genus *Takliwa* gen. nov.

Bearing a strong superficial resemblance to the South American genus *Lycoderes* Germar. Pronotum swollen, flattened laterally and foliaceous. Scutellum exposed. Front and middle tibiae strongly foliaceous. Tegmina broad, tip pointed, apical cell petiolate. Suprahumeral horns long, strong, heavy, projecting outward. Posterior process very heavy at base, rising in a high arch above scutellum, then narrower and decurved and impinging on tegmina. Type: *Takliwa carteri* sp. nov.

5. *Takliwa carteri* sp. nov. (Fig. 5)

Large, yellow, punctate, not pubescent; suprahumeral long, broad, projecting outward with tips depressed; posterior process very heavy at base, slightly bulbous, strongly foliaceous, rising high above scutellum, then narrower, sinuate, tip depressed and reaching almost to tips of tegmina; tibiae of front and middle legs strongly foliaceous; tegmina broad, translucent, bases punctate, tips pointed, five apical and four discoidal cells.

Technical description:

Head wider than long, yellow, finely punctate, not pubescent; base strongly arcuate; eyes small, yellow, extending outward half as far as the humeral angles; ocelli large, yellow, equidistant from each other and from the eyes and situated well above a line drawn through centers of eyes; margins of genae foliaceous; clypeus extending for half its length below inferior margins of genae, tip pointed.

Pronotum yellow, coarsely punctate, not pubescent, roughly sculptured; metopidium about as wide as high; median carina strongly percurrent; humeral angles large, triangular, blunt; suprahumeral horns very large, swollen, twice as long as the distance between their bases, extending outward with tips curved downward, somewhat compressed dorso-ventrally, tips blunt; posterior process rising from behind horns, very thick and heavy at base, rising in a high arch over scutellum, then curving downward to touch tegmina, then sinuate with tip depressed and extending almost to tips of tegmina; scutellum well exposed.

Tegmina yellow, semi-opaque, broad, wrinkled; base narrowly coriaceous, brown and punctate; apical third brown; veins indistinct; tips pointed; limbus narrow, five apical and four discoidal cells.

Sides of thorax and undersurface of body yellow. Tibiae of first and second legs flattened.

Length from front of head to tips of tegmina 7.5 mm.; width between tips of suprahumeral horns 7 mm.

Type: male.

Type locality: Gold Coast, Africa.

Described from a single specimen collected by G. S. Cotterell in 1921-22. Type in Imperial Institute collection.

6. *Otinotoides elevatus* sp. nov. (Fig. 6)

Large, rough, black, punctate; suprahumeral horns long, strong, extending outward and upward; posterior process heavy, sinuate with a high elevation at base; tegmina brown, semi-opaque; sides of thorax grayish tomentose; legs and undersurface of body brown.

Technical description:

Head subquadrangular, wider than long, black, roughly sculptured, coarsely punctate, sparingly pubescent; base strongly and regularly arcuate; eyes large, grayish-brown, extending outward half as far as the humeral angles; ocelli small, inconspicuous, amber-colored, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; margins of genæ curved; clypeus strongly trilobed at tip, extending for half its length below inferior margins of genæ.

Pronotum rough, black, coarsely punctate, sparingly pubescent; metopidium sloping, wider than high; median carina obsolete; humeral angles large, triangular, blunt; suprahumeral horns long, heavy, strong, somewhat flattened dorso-ventrally, as long as the distance between their bases, extending outward and upward, tips subtruncate with posterior angles sharp; posterior process heavy, greatly thickened at base where it forms a strong elevation, impinging on scutellum and tegmina, apical half slender, sinuate, tip sharp and extending to a point half way between internal angles and tips of tegmina; scutellum narrowly exposed.

Tegmina brown, wrinkled, semi-opaque; base broadly coriaceous, black and punctate; basal costal margin black and punctate; limbus narrow; veins heavy, brown, indistinct; five apical and four discoidal cells.

Sides of thorax grayish tomentose; legs and undersurface of body uniformly dark brown.

Length from front of head to tips of tegmina 7 mm.; width between tips of suprahumeral horns 4.7 mm.

Type: female.

Type locality: Bougainville, Solomon Islands.

Described from a single specimen collected by H. W. Simmonds. No date is given on the label.

7. *Otinotoides minuticornis* sp. nov. (Fig. 7)

Small, brown, punctate, pubescent; suprahumeral horns only very slightly produced, in males sometimes entirely absent; posterior process long, slender, sinuate, reaching almost to tip of abdomen; tegmina hyaline with brown bases and subapical spots; sides of thorax white tomentose; undersurface of body dark brown; femora brown; tibiæ and tarsi flavous.

Technical description:

Head subquadrangular, broader than long, finely punctate, densely pubescent with long silvery hairs; base regularly arcuate and sinuate; eyes large, gray, extending outward almost as far as the humeral angles; ocelli small, gray, inconspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus strongly trilobed, extending for more than half its length below inferior margins of genæ.

Pronotum brown, finely punctate, densely pubescent; metopidium sloping, wider than high; humeral angles strong, triangular, blunt, extending outward much farther than minute suprahumeral; median carina faint; suprahumeral horns very small, appearing only as minute elevations; posterior process slender, sinuate, tectiform, tip sharp and extending to a point about half way between internal angles and tips of tegmina; scutellum narrowly exposed, densely white tomentose.

Tegmina wrinkled hyaline; base broadly coriaceous, brown and punctate; a brown spot just behind internal angles; apical limbus narrow and brown; veins heavy and brown; five apical and three discoidal cells.

Sides of thorax densely white tomentose; undersurface of body dark brown; femora brown; tibiæ and tarsi flavous.

Length from front of head to tips of tegmina 5 mm.; width between humeral angles 2.2 mm.; width between tips of suprahumeral 1.5 mm.

Type: female.

Type locality: Su'u, Mala, Solomon Islands.

The males are smaller, darker, with the horns even less developed than in the females, but otherwise similar.

Described from a long series of nineteen females, fourteen males and one nymph all collected by R. A. Lever. Sixteen females, thirteen males and the nymph were taken at the type locality on May 24, 1934; three females and one male taken by the same collector are labeled merely "British Solomons."

Type, allotype, twenty-seven paratypes and the nymph in the collection of the Imperial Institute; four paratypes in author's collection.

8. *Otinotoides brevicornis* sp. nov. (Fig. 8)

Similar to preceding but larger, with horns slightly more prominent, infusate tegmina and differing particularly in the high metopidium with strong, keeled carina.

Black, punctate, pubescent; suprahumeral very small; posterior process sinuate and impinging on tegmina; clypeus three-lobed; sides of thorax densely white tomentose; tegmina hyaline mottled with brown; undersurface and legs brown.

Technical description:

Head subtriangular, black, finely punctate, sparingly pubescent; base feebly arched and strongly sinuate; eyes large, brown, extending outward almost as far as the humeral angles; ocelli large, prominent, glassy, twice

as far from each other as from the eyes and situated well above a line drawn through centers of eyes; margins of genæ curved; clypeus strongly trilobed, extending for two-thirds its length below inferior margins of genæ.

Pronotum black, finely punctate, sparingly pubescent; metopidium high, sloping; humeral angles strong, triangular, blunt; median carina percurrent, elevated, keeled; suprahumeral horns very small, not extending outward as far as the eyes and not nearly to the humeral angles; posterior process slender, sinuate, impinging on tegmina, tip acute and reaching beyond tip of abdomen and almost to tips of tegmina; scutellum narrowly exposed.

Tegmina wrinkled hyaline; base broadly brown, coriaceous and punctate; a transverse brown fascia across center, a brown spot at internal angle and apical limbus brown; five apical and four discoidal cells.

Sides of thorax densely white tomentose; legs and undersurface of body brown.

Length from front of head to tips of tegmina 5.5 mm.; width between humeral angles 2.2 mm.; width between tips of suprahumeral 1.6 mm.

Type: male.

Type locality: British Solomons.

Described from a single specimen collected by R. J. A. W. Lever in January, 1932. Type in Imperial Institute collection.

9. *Rhexia rubra* sp. nov. (Fig. 9)

Brilliant red, smooth, shining; pronotum convex, posterior apex reaching tip of abdomen; scutellum entirely covered; tegmina entirely exposed, one discoidal cell; ocelli farther from each other than from eyes; legs flavous.

Technical description:

Head subtriangular, broader than high, smooth, shining, red, not punctate, not pubescent; base weakly sinuate; eyes triangular, bright red; ocelli large, conspicuous, red, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; clypeus not extending below genæ but continuing the smooth outline of the inferior margin of the genæ.

Pronotum bright red, shining, smooth, not punctate, not pubescent; regularly and smoothly convex over the entire body; metopidium smooth, sloping, twice as broad as high; humeral angles very prominent, heavy, triangular, blunt; median carina faintly percurrent; posterior portion of pronotum not restricted into a distinct process but gradually narrowed to tip which is depressed, blunt, extending just to end of abdomen and reaching a point about half way between internal angles and tips of tegmina; scutellum entirely hidden.

Tegmina reddish hyaline; entirely free; base narrowly red, coriaceous and punctate; veins red; limbus broad; five apical and one discoidal cell.

Under surface of body red; femora reddish; tibiæ and tarsi flavous.

Length from front of head to tips of tegmina 5.5 mm.; width between humeral angles 3.5 mm.

Type: female.

Type locality: Kurupakari, British Guiana.

Described from a single specimen which bears the label "British Guiana. Cattle Trail Survey. Kurupakari. R. Essequibo. August, 1920. A. A. Abraham. Coll."

Type in collection of Imperial Institute.

10. *Tynelia cerulea* sp. nov. (Fig. 10)

Brilliant shining greenish-blue; head greatly projected forward; pronotum convex, unarmed, much swollen on both sides in posterior portion; posterior process produced in sharply angulate, triangular shield-like point; tegmina more than half covered by sides of pronotum, veins heavy, strong and brown; legs and undersurface of body black.

Technical description:

Head greatly produced forward, subtriangular, greenish-blue, roughly sculptured, finely punctate, not pubescent; base gradually arched; eyes extremely large, gray; ocelli very large, gray, much closer to each other than to the eyes and situated well above a line drawn through centers of eyes; clypeus large, swollen, with transverse striae, extending for one-third its length below inferior margins of genæ, tip pilose.

Pronotum shield-shaped; brilliant shining greenish-blue; finely punctate, not pubescent, unarmed; metopidium sloping, broader than high; humeral angles large, heavy, triquerate; no median carina; posterior part of pronotum bulbous and swollen on each side; posterior process cut out on each side in a semicircular arc to form a triangular point with sharp angles, the tip reaching beyond the end of the abdomen but not reaching tips of tegmina.

Tegmina hyaline with heavy brown veins, more than half covered by overhanging sides of pronotum; cells very irregular; limbus broad.

Legs and undersurface of body black.

Length from tip of clypeus to tips of tegmina 7.5 mm.; width between humeral angles 4 mm.

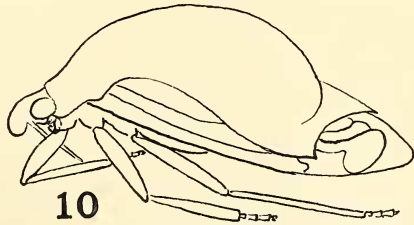
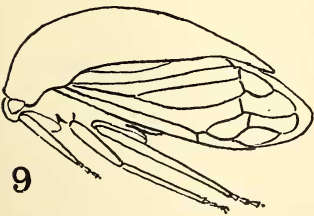
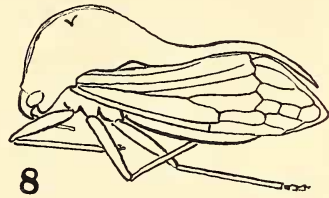
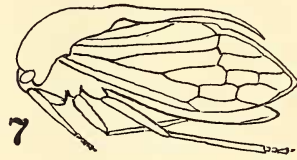
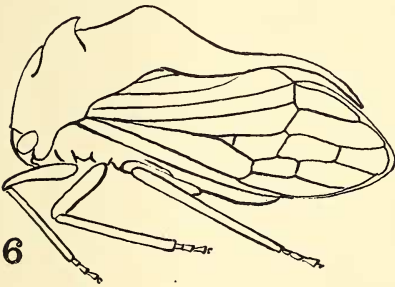
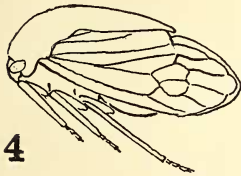
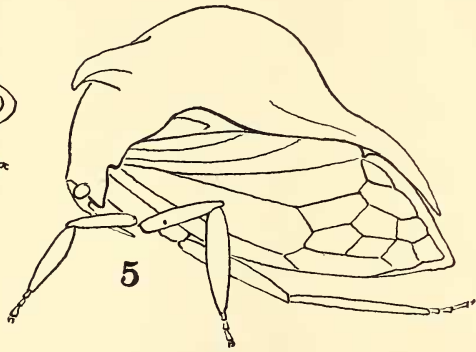
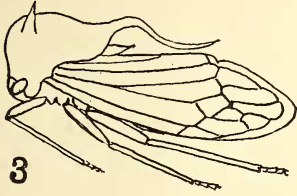
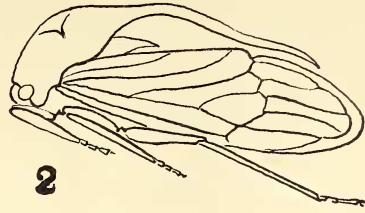
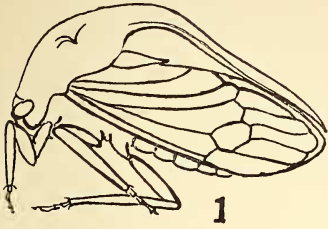
Type: male.

Type locality: Canister Falls, British Guiana.

Described from two specimens, a male and a female, both collected at the type locality by A. A. Abraham in June, 1920. Type in Imperial Institute collection; allotype in author's collection.

PLATE XXIX

- Figure 1. *Leptocentrus albescens* sp. nov.—Lateral outline.
 Figure 2. *Leptocentrus brunneus* sp. nov.—Lateral outline.
 Figure 3. *Evanchon sinuatus* sp. nov.—Lateral outline.
 Figure 4. *Gargara rufula* sp. nov.—Lateral outline.
 Figure 5. *Takliwa carteri* sp. nov.—Lateral outline.
 Figure 6. *Otinotoides elevatus* sp. nov.—Lateral outline.
 Figure 7. *Otinotoides minuticornis* sp. nov.—Lateral outline.
 Figure 8. *Otinotoides brevicornis* sp. nov.—Lateral outline.
 Figure 9. *Rhexia rubra* sp. nov.—Lateral outline.
 Figure 10. *Tynelia cerulea* sp. nov.—Lateral outline.



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